

# POSSIBLE DEVELOPMENT OF A TECHNOLOGY CLEAN DEVELOPMENT MECHANISM IN THE POST-2012 REGIME



BY FEI TENG, WENYING CHEN, AND JIANKUN HE

## OVERVIEW

Many technologies that could mitigate greenhouse gas (GHG) emissions do exist, but not in developing countries. Thus, transfer of climate-friendly technologies from developed to developing countries is vital to solve the global climate challenge. This paper proposes an enhanced Clean Development Mechanism (CDM) regime with greater emphasis on technology transfer.

## DISCUSSION

The Kyoto Protocol's CDM was intended to achieve two objectives: to help industrialized countries to meet their emission targets in a cost-effective way and to support developing countries in achieving the goal of sustainable development. However, in its current form, the CDM does not promote large-scale technology transfer. This is problematic because reduction of greenhouse gases is highly dependent on the timing and scale of the introduction of new technologies. Without an innovative technology transfer mechanism, a huge amount of energy infrastructure in developing countries may be "locked-in" to a carbon-intensive mode.

There are a number of existing proposals for ways to improve the CDM in a post-2012 climate agreement. Under "Programmatic CDM," a public or private organization would coordinate and receive credits for a number of small scale projects distributed over space, time, and owners. Under "Policy CDM," nations would receive credits for implementing policies and measures that are additional. Under "Sectoral CDM," businesses or governments would receive credits for reducing sectoral emissions below some pre-established industry-level emissions standard. These three alternatives focus on scaling up the CDM market, thereby increasing financial flows in carbon markets. However, the objective of a future CDM should not be picking low hanging fruit, but spurring new and replicable technology transfer from developed to developing countries. Neither the current CDM regime nor these alternative CDM regimes are sufficient to induce new and replicable technology transfer.

This paper proposes a new idea for a technology-oriented CDM. This "Technology CDM" would take technology transfer as the emissions-reducing activity for which credits are awarded. Technology CDM would have three unique features. First, the technology transfer goal must be clearly identified before any activities are implemented. The counterfactual baseline against which transfer goals would be evaluated would be defined by the assumption that new technologies would only be adopted in developing countries after a substantial delay. Second, only projects using the technology transferred under the program can receive credit for emissions reductions. Third, credits may be shared by the technology provider or the government of the host country if they provide enabling support for technology transfer and discounted or free licensing.

## KEY FINDINGS & RECOMMENDATIONS

► *Technology CDM offers the opportunity to strengthen the technology transfer effects of the CDM in the near term without redesigning the whole system.* First, Technology CDM provides incentives that specifically address the problem of dirty technology "lock-in" effects. The program would provide emissions credits only for transfers that speed the introduction of new technologies. Second, the "additionality" of projects is relatively easy to prove, since the transfer of best available technology is always impossible in the absence of additional financial support. Third, by bundling together projects that use similar technologies, Technology CDM would create economies of scale and increase the likelihood of successful technology transfer.

- ▶ *Technology CDM also shares some of the key attractions of the existing CDM program.* First, it could lead to a reduction in GHG emissions compared to the baseline emissions that would occur in the absence of the program. Second, all projects that adopt one type of technology could use the same baseline and the same monitoring methodology. Such inclusion would greatly simplify the whole process and reduce the transaction costs and registration risks.
- ▶ *Technology CDM fulfills the “measurable, reportable, and verifiable” requirement of the Bali Action Plan.* The emissions credits generated by Technology CDM can be regarded as a metric for technological and financial support provided to developing countries by developed countries. Additionally, the process would include documentation, validation, and verification.
- ▶ *Technology CDM reduces the risk of low-carbon investment.* Under regular CDM, investors require a high risk premium for financing unregistered emission units, as the probability of successful registration is uncertain. However, under Technology CDM, once a technology is proved to be eligible, projects using the technology will be automatically accepted. Given the low risk in future flows of certified emissions reduction credits, project owners could sell their credits to raise capital before the operation of the project. Additionally, the way credits are awarded in Technology CDM gives some guarantee to the intellectual property rights of technology providers.
- ▶ *Technology CDM should focus not only on the final stage of CERs acquisition, but the whole technology transfer process.* This includes a number of steps: (1) defining technology transfer priorities; (2) establishing partnerships between public and private stakeholders; (3) addressing concerns of both technology providers and recipients; (4) bundling similar projects to achieve economies of scale; and (5) bundling similar projects to reduce transaction costs and further offset project costs.

## CONCLUSION

The focus of this paper is not to design a new and comprehensive solution for the post-2012 climate regime, but try to improve the existing CDM regime. The experience of past international negotiations indicates that developing a climate agreement will be an evolutionary and path-dependent process. A breakthrough idea is needed, but it should be arrived at through a series of gradual changes.

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## ABOUT THE HARVARD PROJECT ON INTERNATIONAL CLIMATE AGREEMENTS

The goal of the Harvard Project on International Climate Agreements is to help identify key design elements of a scientifically sound, economically rational, and politically pragmatic post-2012 international policy architecture for global climate change. It draws upon leading thinkers from academia, private industry, government, and non-governmental organizations from around the world to construct a small set of promising policy frameworks and then disseminate and discuss the design elements and frameworks with decision-makers. The Project is co-directed by Robert N. Stavins, Albert Pratt Professor of Business and Government, John F. Kennedy School of Government, Harvard University, and Joseph E. Aldy, Fellow, Resources for the Future. Major funding for the Harvard Project on International Climate Agreements is provided by a generous grant from the Climate Change Initiative of the Doris Duke Charitable Foundation.

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